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EXAMINER

ELALLAM, AHMED

ART UNIT PAPER NUMBER

2662

DATE MAILED: 02/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/750,403

Applicant(s)

JACOBSON ET AL.

Examiner

AHMED ELALLAM

Art Unit

2662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 December 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to because in figure 4, unite 406 indicated as control Lan. However in the specification, page 8, line 2, it is referred to as control Law. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

2. Claim 4 is objected to because of the following informalities:

In claim 4, it is stated that k indicates the presently received packet, and k-1 indicates the EWMA computed when the last packet was received. It appears that the values of k and k-1 have different units; stated differently, the k and k-1 should both refer to the EWMA.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 8-15, 17-19, 22, and 23 is rejected under 35 U.S.C. 102(e) as being anticipated by Lyon et al, US (6,333,917).

Regarding claim 8, Lyon discloses a RED (random early detection) policer system comprising:

A RED+ engine (unit 62, figure 9) for determining an AVR-TIME implemented as an EWMA (Exponential weighted moving average), see column 16, lines 45-65.

(Claimed means for determining a moving average of a virtual time debt);

DROP/TAG for determining whether to drop a packet based on the value of AVR-TIME. See column 16, lines 14-65. (Claimed means for determining whether a packet should be dropped based on a value of the moving average of the virtual time debt).

Regarding claim 9, Lyon discloses averaging time between marks to determine the TIME-AVR, wherein the marks are carried out using a marking rate generator (unit

74, figure 9). See column 16, lines 27-33 and lines 14-65. (Examiner interpreted the marking as being the claimed means for sampling a virtual time debt at a sampling interval, and that the use of the TIME-AVR in the EWMA, as being the claimed transmitting the result to moving average determining means).

Regarding claim 10, Lyon discloses with reference to figure 10, a decision generator for generating a random number based on the result of the marking rate generator, and a counter for counting a number of packets passing through the RED engine, wherein a packet is dropped when the counter counts up to the random generated number, Figure 10, column 12, lines 52-67 and column 13, lines 1-13.

(Examiner notes that the limitation of claim 10 is taught in the incorporated article to Jacobson, see Lyon column 12, lines 14).

Regarding claim 11, Lyon, with reference to figures 4 and 5, discloses a plurality of RED engines policers (Random Early Detection), wherein each RED policer (Figure 5) include:

A marking rate generator 74 that observe the queue dynamics, see column 11, lines 58-67 and column 12, lines 1-2, the marking rate generator using an EWMA for AVR-TIME determination (marking parameter), see column 16, lines 45-65. (Claimed a filter that determine a filtered virtual time debt);

Marking decision generator 76 that receives the marking parameter for marking the packet (claimed a control law circuit that receives the virtual time debt from the filter and determines whether a packet should be dropped);

Lyon further discloses that separate red engine can be used for each class of traffic, see column 17, lines 62-67 and column 18, lines 1-3. (it is inherent to have a classifier to determine which packet has to go to each policer, because that is needed to map the individual classes of traffic to the policer with the specific parameters of each class)

Regarding claims 12 and 14, Lyon discloses a RED (random early detection) policer system that can be implemented in hardware/and or software comprising:

A RED+ engine (unit 62, figure 9) for determining an AVR-TIME implemented as an EWMA (Exponential weighted moving average), see column 16, lines 45-65 and figure 14. (Claimed determining a virtual time dept of a traffic);

Lyon, with reference to figure 14, shows a step of comparing the AVR-TIME to a statistical criteria using an EWMA. (Examiner interpreted this step as being the claimed comparing the virtual time dept with a threshold, because the use of the EWMA applied to the arrival time is used for comparing to the available average time to the statistical criteria for marking the packet to be either conforming or non-conforming, therefore the statistical criteria is interpreted as being the claimed minimum threshold);

Lyon discloses with reference to figure 10, a decision generator for generating a random number based on the result of the marking rate generator, and a counter for counting a number of packets passing through the RED engine, wherein a packet is dropped when the counter counts up to the random generated number, Figure 10, column 12, lines 52-67 and column 13, lines 1-13.

Regarding claims 13 and 15, Lyon discloses with reference to figure 10, a decision generator for generating a random number based on the result of the marking rate generator, and a counter for counting a number of packets passing through the RED engine, wherein a packet is dropped when the counter counts up to the random generated number, Figure 10, column 12, lines 52-67 and column 13, lines 1-13.

Regarding claim 17, Lyon discloses a method of policing packet in a network device, comprising:

A RED (random early detection) engine (unit 62, figure 9) for determining an AVR-TIME implemented as an EWMA (Exponential weighted moving average), see column 16, lines 45-65. (Claimed determining a virtual time debt of packet flowing through the network device);

DROP/TAG unit 58 for determining whether to drop a packet based on the value of AVR-TIME. See column 16, lines 14-65. (Claimed determining whether a packet should be dropped based on the virtual time debt of the packets).

Regarding claim 18, Lyon with reference to figure 14 shows a step of comparing the AVR-TIME to a statistical criteria using an EWMA. (Claimed determining that a packet should be dropped when a virtual time dept threshold has been reached). (Examiner interpreted this step as being the claimed comparing the virtual time dept with a threshold, because the use of the EWMA applied to the arrival time is used for comparing to the available average time to the statistical criteria for marking the packet to be either conforming or non-conforming, therefore the statistical criteria is interpreted as being the claimed virtual time debt threshold).

Regarding claim 19, Lyon discloses determining an AVR-TIME implemented as an EWMA (Exponential weighted moving average), see column 16, lines 45-65. (Claimed determining a moving average of the virtual time debt).

Regarding claim 22, Lyon discloses averaging time between marks to determine the TIME-AVR. See column 16, lines 27-33 and lines 14-65. (Examiner interpreted the marking as being the claimed sampling a virtual time debt at a sampling interval).

Regarding claim 23, Lyon discloses with reference to figure 10, a decision generator for generating a random number base on the result of the marking rate generator, and a counter for counting a number of packets passing through the RED engine, wherein a packet is dropped when the counter counts up to the random generated number, Figure 10, column 12, lines 52-67 and column 13, lines 1-13.

(Examiner notes that the limitation of claim 10 is taught in the incorporated article to Jacobson, see Lyon column 12, lines 14, stated differently, claim 10 can be also viewed as being unpatentable over Lyon in view of Jacobson).

4. Claims 24-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Gracon et al, US 2002/01101134.

Regarding claim 24, Gracon, with reference to figure 3, discloses a method for policing packet in a packet scheduler (claimed network device), the method comprising:

Comparing theoretical arrival time (TAT) to the arrival time ( $T_a$ ), the TAT calculated based on MIR (Maximum Information Rate), see paragraph [0039]; (Claimed determining a virtual time debt of packet flowing through the network device, the virtual



time dept computed as a difference between an expected packet arrival time established by a traffic contract and an actual packet arrival time);

Determining if the TAT is greater than the sum of Ta and L (which is equivalent to claimed the virtual time debt of the packets exceeds a predetermined value, because TAT is greater than the sum of TA and L is the same as TAT-Ta greater than L (L is regarded as the predetermined value), then the packet is determined to be non-conforming and should be dropped, see [0039], (Claimed determining that packets should be dropped when the virtual time dept of the packets exceeds a predetermined value);

Choosing a packet to be dropped, in response to a random number, see [0049];

Dropping the chosen packet, see [0049].

Regarding claim 25, Gracon discloses a prior art RED policer using random number, and counting a number of packets received up to the random number and dropping the packet when the counted number reaches the random number, see paragraph [0045].

Regarding claim 26, claim 26 is a means claims and have the same scope of claim 24, further Gracon discloses a policer for implementing the method of claim 24, thus the policer is interpreted as being the claimed means in claim 26.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2662

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silberschatz et al (US 6,556,578) in view of Lyon et al, US (6,333,917).

Regarding claim 1, Silberschatz discloses a policer based on Random Early Detection (RED), comprising:

determining a global average queue occupancy, figure 2a, step 321, where the average is recomputed on the arrival of each new packet at the buffer; .

comparing the global average queue occupancy to a threshold, and if average queue occupancy does not exceed the maximum threshold but is greater than a minimum threshold (step 38), a dynamically generated probability is determined for dropping the packet, see steps 36-44 and column 4, lines 27-40.

The difference between Silberschatz teaching and the limitations of claim 1, is that that the dropping of packet is based on time variable and not the buffer occupancy.

However, Lyon discloses in the same field of random early detection algorithm, marking packets based on EWMA time-based method (Exponential weighted moving average time), see column 16, lines 14-65. (Examiner interpreted the claimed filtered virtual time dept as being equivalent to the EWMA based AVR-TIME disclosed by Lyon, because, in accordance with the instant application the filtered virtual time debt is implemented as exponential weighted moving average, EWMA, which is the average

packet flow with a weight factor to determine how previously inputted packets affect the mean value compared to more recent packets).

Therefore, it would have being obvious to an ordinary person of skill in the art, at the time the invention was made to drop the packet using the time based dropping taught by Lyon instead of buffer occupancy method of Silberschatz so that time delays between source and destination are accounted for in policing the traffic. The advantage would be having a discard rate rather than a discard probability (Lyon column 2, lines 61-66) resulting in a more deterministic approach when to drop a packet.

Regarding claim 5, Silberschatz incorporated article of Morris et al, sections 4.4 and 4.5 discloses the use of sampling at the arrival time of the packet used for the calculation of the EWMA, see column 4, lines 11-26. (A sampler is needed for sampling at sampling interval for the determination of the EWMA by the filter).

Regarding claims 6, Silberschatz discloses generating a random number  $r$  having a value between zero and maximum probability, and then indicating that a packet must be dropped when the random value is less than or equal to the maximum probability; column 4 lines 34-40, and that after selection of a random number, the packet is dropped when the random value is less than or equal to the maximum probability. The count value can be incremented every time max probability is computed and reset to zero whenever a packet is dropped. The initial packet dropping probability is empirically chosen based on link speeds to ensure an appropriate number of packet drops per second when the minimum queue length threshold is exceeded; column 4 lines 34-57.

Silberschatz discloses all the limitation of claim 6, except it does not specify a generator and a counter.

However, it would have been obvious to an ordinary person of skill in the art at the time the invention was made to provide a generator and a counter within the policer of Silberschatz so that the method of RED policer of Silberschatz can be implemented.

Regarding claim 7, Silberschatz discloses if the queue average does not exceed the maximum threshold but is greater than a minimum threshold (step 38), a dynamically generated probability  $p_{sub.a}$  is determined (step 40) and applied such that the probability of a packet drop indication being provided is  $p_{sub.a}$ ; column 4 lines 26-40; Silberschatz further discloses generating a random number  $r$  having a value between zero and the maximum value of  $p_{sub.a}$ , and then indicating that a packet must be dropped when  $r$  is less than or equal to  $p_{sub.a}$  (steps 42, 36), and if the average is less than the minimum threshold, then no packet drop indication is provided. (steps 44, 38), see also column 4 lines 26d0). (Claimed determining a probability of a packet being dropped based on the filtered time debt exceeding a predetermined minimum threshold, and specifies a range of numbers based on the probability the random generator that randomly generates a number in the range)

Silberschatz/Lyon do not specify the control law for carrying the determination of the dropping probability. However, it would have been obvious to an ordinary person of skill in the art at the time the invention was made to provide a controller for implementing the dropping probability as taught by Silberschatz/Lyon. A person would

be motivated to have the means necessary for implementing the policing method of Silberschatz/Lyon.

6. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silberschatz in view of Lyon as applied to claim 1 above, and further in view of Fahmi et al, US (6,108,303).

Regarding claims 2 and 3, claim 2 recites that the virtual time debt uses a time T in which a packet is expected to arrive and is computed using a predetermined output transmission rate. (In accordance with the specification the time T is understood as being the theoretical (virtual ) time that may be contracted to a user , see specification page 8, lines 23-25).

Lyon in view of Silberschatz discloses the AVR-TIME uses the time the packet actually arrived but not a time in which the packet is expected to arrive (claimed virtual time debt uses a time T).

However, Fahmi discloses marking cell based on TAT (theoretical arrival time), wherein the TAT can be computed based on traffic contract (claimed output rate as in claim 2, and claimed transmission rate is based on traffic contract as in claim 3). See column 3, lines 1-34.

Therefore, it would have being obvious to an ordinary person of skill in the art at the time the invention was made to use the TAT as defined by Fahmi in addition to the arrival time of Silberschatz/Lyon in determining AVR-TIME instead of simply the actual arrival time so that different thresholds can be assigned to different classes of traffic in

accordance with the traffic contract along with considering delays occurred from the source of traffic. The advantage would be the ability of Silberschatz/Lyon method to be practiced in nodes (i.e. switch) by policing different classes of traffic using different dropping thresholds for each different class of traffic.

Regarding claim 4, claim 4 recites that the filter is based on an exponential weighted moving average (EWMA) virtual time delay using the equation  $EWMA_k = (1-g)EWMA_{k-1} + g(VTD)_k$ , the VTD is the virtual time debt, and VTD is the difference between the time the packet is expected to arrive and the time the packet actual arrived.

Silberschatz discloses a RED policer of claim 1, wherein the filter is based on an exponential weighted moving average (EWMA) virtual time delay using the expression,  $EWMA = (1-g)EWMA + g(VTD)$ , (Silberschatz discloses red policer in the article of Morris et al section 4.5 column 2, a "calculate average queue length" formula that uses the same variables for the equation  $avg = (1-wq)*avg + wq*q$ ), wherein Avg is EWMA, wq is the filter gain, g, and q is the sampled queue size at the instant time, section 4.4, 4.5 of Morris indicated in the specification at column 4, lines 18-23).

The difference between the claimed limitation and the teaching of Silberschatz, is that the filter of Silberschatz uses an EWMA buffer occupancy (average buffer occupancy) instead of EWMA time debt (VTD, difference of packet time arrival).

Lyon discloses in the same field of random early detection algorithm, marking packets based on EWMA time-based method (Exponential weighted moving average time based on the arrival of the packet), see column 16, lines 14-65.

Lyon in view of Silberschatz discloses the AVR-TIME uses time the packet actually arrived but not a time in which the packet is expected to arrive.

However, Fahmi discloses marking cell based on the difference between the actual arrival time and the expected arrival time of the packet (TAT). See column 3, lines 1-34.

Therefore, it would have being obvious to an ordinary person of skill in the art, at the time the invention was made to use the time delay teaching of Fahmi (claimed VTD) in the implementation of AVR-TIME of Silberschatz/Lyon using the "VTD" instead of arrival time only so that policing traffic in the system of Silberschatz/Lyon would account for variable delays from the source of traffic in implementing the dropping probabilities along each different class of traffic. The advantage would be the ability of Silberschatz/Lyon method to be practiced in nodes (i.e. switch) by policing different classes of traffic and making the dropping of packets more deterministic by having more accurate time delay variations that are used in the calculation of AVR-TIME values.

7. Claims 16 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lyon in view of Subramaniam et al, US (6,640,302).

Regarding claim 16, Claim 16 recites the same limitation of method claim 12, except that it does not specify that the method can be practiced using electromagnetic signals propagating over a computer network and carrying instruction for implementing the method.

However, Subramaniam discloses using electromagnetic signals propagating on a computer network, electromagnetic signals carrying instructions for execution on a server for the practice of a method claim. See claim 28.

Therefore, it would have being obvious to an ordinary person of skill in the art, at the time the invention was made to implement the RED policing method of Lyon using electromagnetic signals propagating on a computer network as disclosed by Subramaniam so instructions for computer implemented method of Lyon can be transmitted remotely over a computer network. The advantage would be the ability to remotely program the computers that implement the method of Lyon in a dynamic fashion.

Regarding claim 28, Claim 28 recites the same limitation of method claim 17, except that it does not specify that the method can be practiced using electromagnetic signals propagating over a computer network and carrying instruction for implementing the method.

However, Subramaniam discloses using electromagnetic signals propagating on a computer network, electromagnetic signals carrying instructions for execution on a server for the practice of a method claim. See claim 28.

Therefore, it would have being obvious to an ordinary person of skill in the art, at the time the invention was made to implement the RED policing method of Lyon using electromagnetic signals propagating on a computer network as disclosed by Subramaniam so instructions for computer implemented method of Lyon can be transmitted remotely over a computer network. The advantage would be the ability to



remotely program the computers that implement the method of Lyon in a dynamic manner.

8. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lyon in view of Fahmi et al, US (6,108,303).

Regarding claim 20, Lyon discloses substantially all the limitations of parent claim 17. In addition Lyon discloses the AVR-TIME based on the arrival time of the packet.

The difference between Lyon teaching and the claimed limitation of claim 20, is that Lyon uses the arrival time of the packet and not the difference between the arrival time and the theoretical arrival time of the packet.

However, Fahmi discloses marking cell based on the difference between the actual arrival time and the expected arrival time of the packet ( $TAT - T_a$ ) to mark the cell as conforming or non-conforming. See column 3, lines 1-34.

Therefore, it would have being obvious to an ordinary person of skill in the art, at the time the invention was made to use the time delay teaching of Fahmi (claimed VTD) in the implementation of AVR-TIME of Lyon instead of arrival time only so that policing traffic in the system of Lyon would account for the delay incurred between the source of the traffic and the device shaping the traffic. The advantage would be the ability of Lyon to apply the EWMA to the "time difference" instead of arrival time only resulting in more deterministic approach of dropping the packets, since fluctuations in time delays would be accounted for.

Regarding claim 21, Lyon does not specifically disclose a calculating the time a packet is expected to arrive according to a traffic contract.

However, Fahmi discloses marking cell based on TAT (theoretical arrival time) (claimed arrival time), wherein the TAT can be computed based on traffic contract. See column 3, lines 1-34. (Claimed calculating the time a packet is expected to arrive according to a traffic contract).

Therefore, it would have been obvious to an ordinary person of skill in the art at the time the invention was made to use the (TAT-Ta) variable as defined by Fahmi in the determination of the AVR-TIME of Lyon instead of simply the actual arrival time of the packet so that different thresholds can be assigned to different classes of traffic in accordance with the traffic contract. The advantage would be the ability of Lyon method to be practiced in nodes for policing different classes of traffic that have different traffic contract, resulting in more efficient use of the network bandwidth and accounting for delay fluctuations of different classes of traffic in determining the dropping probabilities as a function of thresholds.

9. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lyon, US (6,333,917).

Regarding claim 27, Lyon discloses all the limitations of claim 27 (claim 27 is a computer readable media containing instructions for execution in a processor for the practice of method claim 17).

Lyon does not disclose a computer readable media containing instructions for execution in a processor for the practice of method claim 17.

Examiner takes official notice that computer readable media containing instructions for execution in a processor for the practicing methods is well known in the art, since official office is taken, It would have been obvious to an ordinary person of skill in the art to have the method of claim 17 being implemented using instructions embedded in a computer readable media. The advantage would be the ability to store the instructions for implementing the method of Lyon in various storage mediums such as electronic storage, magnetic storage, optical storage, etc such mediums are advantageous in the industry, for example, portability, electronic distribution of the product, remote testing, etc...

### ***Response to Arguments***

10. Applicant's arguments with respect to claim 1-16 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***


11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Blumer et al, US 2002/0105908; Ott et al, US (6,560,198); Bonneau, US (6,671,258); Heddes et al, US (6,674,718); Wang et al, US (6,748,435); Benmohamed et al, US (6,795,399); Firoiu et al, US (6,820,128); Shorey et al, US (6,829,649); Chioruvolu, US (6,839,321).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AHMED ELALLAM whose telephone number is (571) 272-3097. The examiner can normally be reached on 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kizou Hassan can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AHMED ELALLAM  
Examiner  
Art Unit 2662  
January 31, 2005



JOHN PEZZLO  
PRIMARY EXAMINER